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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 09/940,911 | 08/28/2001 | Michael K. Gschwind | YOR9-2001-0606 (8728-545) | 5165 |

| | |
|---|---|
| 7590    08/02/2004 | EXAMINER |
| F. CHAU & ASSOCIATES, LLP Suite 501 1900 Hempstead Turnpike East Meadow, NY 11554 | CHOI, WOO H |

| ART UNIT | PAPER NUMBER |
|---|---|
| 2186 | |

DATE MAILED: 08/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C  (Rev. 10/03)

| | Application No. | Applicant(s) |
|---|---|---|
| **Office Action Summary** | 09/940,911 | GSCHWIND ET AL. |
| | Examiner | Art Unit |
| | Woo H. Choi | 2186 |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on <u>28 August 2001</u>.

2a)☐ This action is **FINAL**.  2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) <u>1-29</u> is/are pending in the application.

    4a) Of the above claim(s) <u>25-29</u> is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-24</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☒ Claim(s) <u>1-29</u> are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>28 August 2001</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All  b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date <u>08/28/01</u>.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

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## DETAILED ACTION

### *Election/Restrictions*

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:

   I. Claims 1 - 24, drawn to a system for aligning and inserting data into memory based on an instruction sequence of alignment instructions and a store instruction, classified in class 711, subclass 154.

   II. Claims 25 – 29, drawn to a method of storing data in a system without an alignment network where the range of bits to be stored is specified in the store instruction, classified in class 711, subclass 154.

   Inventions I and II are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct from each other if they are shown to be separately usable. In the instant case, invention I can be used in a system with an alignment network while invention II is for a system without an alignment network. The main feature of invention II is drawn to a method of selecting the range of bits to store based on an operand supplied in the store instruction. This feature, which is not present in invention I, not only has a utility that is independent and separate from invention I as well, but also requires additional searches in class 712, subclasses 225 and 300. See MPEP § 806.05(d).

   Because these inventions are distinct for the reasons given above and the search required for Group II is not required for Group I, restriction for examination purposes as indicated is proper.

During a telephone conversation with Frank Chau, registration No. 34,136, on July 20, 2004, a provisional election was made without traverse to prosecute the invention of I, claims 1 – 24. Affirmation of this election must be made by applicant in replying to this Office action. Claims 25 – 29 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

### *Claim Rejections - 35 USC § 112*

2.      The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3.      Claims 1 – 18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1 and 12 recite the limitation "the memory" in lines 8 and 9, respectively. There are two memories recited prior to the limitation, "a memory" and "another memory". It is not clear which of the two memories "the memory" refers to. For the purposes of the examination, the Examiner interprets "the memory" as referring to the first mentioned "a memory" in light of claim 2. It is suggested that Applicant use terms that clearly distinguish the two memories, for example, "a first memory" and "a second memory".

Claims 2 – 11 and 13 – 18 are rejected for including the deficiencies of their parent claims.

## *Claim Rejections - 35 USC § 102*

4.      The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5.      Claims 1 – 7, 11 – 13, 17 – 20 and 22 – 24 are rejected under 35 U.S.C. 102(b) as being

anticipated by Hao *et al.* (US Patent No. 4,569,016, hereinafter "Hao").

6.      With respect to claims 1, 12 and 18, Hao discloses a method for aligning and inserting

data elements into a memory based upon an instruction sequence consisting of one or more

alignment instructions and a single store instruction, comprising the steps of:

given a data item that includes a data element to be stored, aligning the data element in

another memory with respect to a predetermined position in the memory, in response to the one

or more alignment instructions (Rotate and Store instructions on columns 18 and 19, see also

Rotate the Mask Insert instructions on column 13);

dynamically generating a mask to enable writing of a memory bit lines that correspond to

the aligned data element (col. 18, lines 23 – 24); and

writing the memory bit lines to the memory under a control of the mask, wherein said

generating and writing steps are performed in response to the single store instruction (col. 18,

lines 24 – 27, col. 13, lines 23 – 25).


7.      With respect to claims 2, 6, 19 and 20, Hao discloses a method for storing data in a

memory based upon an instruction sequence consisting of one or more alignment instructions

and a single store instruction, comprising the steps of:

aligning the data in a register relative to a location of the data within a target memory

address line, in response to the one or more alignment instructions (Rotate and Store instructions

on columns 18 and 19, see also Rotate the Mask Insert instructions on column 13); and

storing a portion of the aligned data within the memory under a control of data type

information and an address argument specified by the single store instruction, in response to the

single store instruction (col. 18, lines 24 – 27, col. 13, lines 23 – 25, storing is under the control

of data types, for example, immediate data for Rotate Immediate the Mask Insert instruction, and

address argument, for example, Rotate then Mask Insert instruction specifies a register to store

the data).


8.      With respect to claim 3, the method further comprises the step of computing the mask

from an address argument corresponding to the single store instruction (col. 13, 16 – 30, mask is

taken from an immediate address, see also col. 18, lines 42 – 55, byte marks generated from an

address is used as masks for storage of data).

9.      With respect to claims 4 and 22, the address argument (col. 18, lines 26 – 28) comprises a displacement value (+4) and an address value (content of RA).

10.     With respect to claims 5 and 23, the address value specifies a particular register (col. 13, lines 38 – 39).

11.     With respect to claim 7, the predetermined position in the memory corresponds to a target position within a memory line (col. 20, lines 36 – 40).

12.     With respect to claims 11 and 24, the instruction sequence is without a merge instruction (the steps are performed in a single Rotate and Store instructions, see also col. 13, Rotate then Mask Insert instructions).

13.     With respect to claim 13, said system exploits partial line write capabilities of the memory (col. 18, lines 42 – 55, byte marks are used to partially write to a memory location).

14.     With respect to claim 17, the memory comprises a cache (figure 1, 18, 20), and said means for writing writes the data element to the cache under the control of the mask (col. 3, lines 15 – 21, col. 4, lines 17 – 55, stored data is "stored in cache").

### Claim Rejections - 35 USC § 103

15.     The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

16.     Claims 8 – 9 and 14 – 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Hao in view of Applicant's Admitted Prior Art (AAPA).

Hao discloses all of the limitations of the parent claims as discussed above.  However,

Hao does not specifically disclose the system uses data parity or ECC.  On the other hand,

AAPA discloses that use of data parity or ECC in a computer system is well known to those of

ordinary skill in the art (specification page 11, lines 20 – 23).

It would have been obvious to one of ordinary skill in the art, having the teachings of

AAPA and Hao before him at the time the invention was made, to use the ECC teachings of the

computer system of AAPA in the computer system of Hao, in order to order to increase the

reliability of the system.

17.     Claims 10, 16, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Hao in view of Sites *et al.* (US Patent No. 6,167,509, hereinafter "Sites").

Hao discloses all of the limitations of the parent claims as discussed above. However, Hao does not specifically disclose that the method comprises the use of a read-write buffer. On the other hand, Sites discloses a method of storing data comprising a step of intermediately storing the memory bit lines from the other memory to a read-write buffer before said writing step (col. 7, lines 46 – 53).

It would have been obvious to one of ordinary skill in the art, having the teachings of Sites and Hao before him at the time the invention was made, to use the write buffer teachings of the computer system of Sites in the computer system of Hao, in order to minimize the number of CPU stall cycles by providing high bandwidth resource for receiving store data (Sites, col. 7, lines 46 – 53).

### Conclusion

18.    The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Site et al. (US Patent NO 5,410,682), Phillips et al. (US Patent No. 5,471,628), Palanca et al. (US Patent No. 6,173,393), Wada et al. (US Patent No 4,396,982), Blaner et al. (US Patent No. 5,386,531) and Van Hook et al. (5,938,756) disclose other computer systems that aligns and stores data item using masks.

19.    Any inquiry concerning this communication or earlier communications from the examiner should be directed to Woo H. Choi whose telephone number is (703) 305-3845. The examiner can normally be reached on M-F, 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matt Kim can be reached on (703) 305-3821. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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July 20, 2004
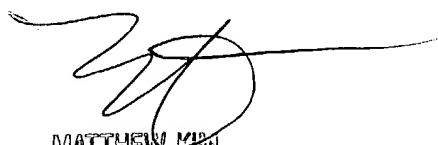
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